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Evaluation and Utilization of Breed Resources - Sheep and Goats

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I believe just a few brief introductory remarks to this plenary session are needed. We are discussing three distinct topics in this session and the reason for choosing them warrants some brief comment.

In the plenary session on Sheep and Goat Genetics and Breeding at this conference in Madrid in 1982 there were two papers relating to breed evaluation and utilization. Dr Alan Quartermain discussed the utilization of breed resources in the improvement of goat productivity, while Dr Neil Clarke comprehensively reviewed utilization of breed resources in the improvement of sheep productivity.

In his paper Dr Quartermain clearly identified that a large number of distinct breeds of domestic goat existed with a wide range of adaptations to environment and producing a number of unique end products. At the same time he identified that the production characteristics of many of these breeds were not well documented, and that relatively little attempt had been made to develop systematic crossbreeding in goats.

In this plenary session Dr Shelton's paper is a concise summary of the present state of knowledge concerning breed use and crossbreeding in goat production. He reviews crossing for milk, meat and fiber production and while there is probably still need for further well-designed research in all three areas, there is useful information coming available. The Proceedings of the Third World Congress on Goat Production held in Tucson, Arizona in 1982 also includes several very pertinent reviews in the crossbreeding and breed utilization area.

In his 1982 paper, Clarke clearly established that superior performance of first-cross sheep relative to the component purebreds (i.e. heterosis) was the rule rather than the exception. From preliminary and somewhat sparse information available at that time he also concluded that the first-cross performance was a relatively poor predictor of inter-bred performance in subsequent generations.

In this session a joint paper by U.S.D.A. (Young and Dickerson) and C.S.I.R.O. (Ch'ang and Evans) research workers reviews both their own research and other pertinent literature on heterosis retention in sheep. A total of twelve experiments relating to heterosis retention or "recombination loss" are reviewed. Dr Clarke's conclusions in 1982 remain largely unchanged since it still appears that heterosis in advanced generations of crossbred populations cannot be accurately predicted from initial (first-cross) heterosis and retained heterozygosity.

The concluding section of Dr Clarke's 1982 review mentioned the difficulties involved in estimating the net efficiency of alternative breeds or crossbreeding systems, but with a plea for more research in this important area. Our colleagues working with swine and cattle have made some important inroads into this area of research. It therefore seemed timely to review what information

was available concerning the costs and benefits of breed utilization strategies in sheep. Dr Hohenboken undertook this review. It was not an easy task since there is still not a lot of literature on the subject in sheep. His paper not only comprehensively reviews the relevant literature that was available but also includes some pertinent and timely comments on the problems associated with appraising economic ramifications of breed utilization in sheep and a useful section on recommendations for future research.